

C.
L9227n x Lowy, Alexander

Organic type formulas

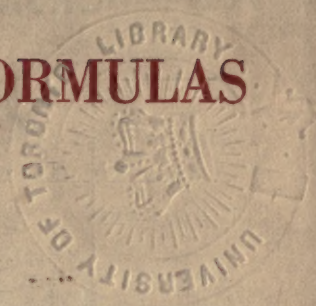




July 1891.

L9227nx

ORGANIC TYPE FORMULAS



COMPILED BY

ALEXANDER LOWY, Ph. D.

Assistant Professor of Organic Chemistry, University of Pittsburgh.



156116

22/9/20

NEW YORK
D. VAN NOSTRAND COMPANY
EIGHT WARREN STREET
1920

ORGANIC TYPE FORMULAS

ALIPHATIC SERIES

COLUMN I			COLUMN II		
HYDROCARBONS					
SATURATED	UNSATURATED				
PARAFFINS = $C_n H_{2n+2}$ ALKANES	OLEFINS = $C_n H_{2n}$ ALKENES	ACETYLENES = $C_n H_{2n-2}$ ALKINES	$H_3C-C \begin{matrix} \diagup O \\ \diagdown O \end{matrix}$ $H_3C-C \begin{matrix} \diagup O \\ \diagdown O \end{matrix}$	$-C \begin{matrix} \diagup O \\ \diagdown O \end{matrix}$ $-C \begin{matrix} \diagup O \\ \diagdown O \end{matrix}$	$R-C \begin{matrix} \diagup O \\ \diagdown O \end{matrix}$ $R-C \begin{matrix} \diagup O \\ \diagdown O \end{matrix}$
			ACETIC ANHYDRIDE	ANHYDRIDE GROUP	ANHYDRIDES
H $H-C-H$ H METHANE			$H_3C-C \begin{matrix} \diagup O \\ \diagdown NH_2 \end{matrix}$ ACETAMIDE	$-C \begin{matrix} \diagup O \\ \diagdown NH_2 \end{matrix}$ AMIDE GROUP	$R-C \begin{matrix} \diagup O \\ \diagdown NH_2 \end{matrix}$ AMIDES
H H $H-C-C-H$ H ETHANE	H H $C=C$ H ETHYLENE OR ETHENE	H H $C \equiv C$ ACETYLENE OR ETHINE	$H_3C-C \begin{matrix} \diagup O \\ \diagdown Cl \end{matrix}$ ACETYL CHLORIDE	$R-C \begin{matrix} \diagup O \\ \diagdown \end{matrix}$ ACYL GROUP	$R-C \begin{matrix} \diagup O \\ \diagdown X \end{matrix}$ ACYL HALIDES
ALKYL HALIDES			SUBSTITUTED ACIDS		
H $H-C-Cl$ H METHYL CHLORIDE OR MONOCHLOROMETHANE	$R-X$ CH_3 C_2H_5 $C_n H_{2n+1}$	X -HALOGEN R -ALKYL ALKYL GROUP = R	$H_3C-COOH$		
			$H_2C-COOH$ Cl	$H_2C-COOH$ OH	$H_2C-COOH$ NH_2
			CHLOROACETIC ACID	HYDROXYACETIC ACID	AMINOACETIC ACID
ALCOHOLS			$H_2C-COOH$ CN	$H_2C-COOH$ $COOH$	
			CYANOACETIC ACID	MALONIC ACID	
H $H-C-OH$ H METHANOL OR METHYL ALCOHOL	$-OH$ ALCOHOL GROUP	H $H-C-ONa$ H SODIUM METHOXIDE OR SODIUM METHYLATE	AMINES		
H $R-C-OH$ H	$R-C-OH$ H	$R-C-OH$ R	N H $-CH_3$ METHYL AMINE	N H $-CH_3$ $-CH_3$ DIMETHYL AMINE	N $-CH_3$ $-CH_3$ $-CH_3$ TRIMETHYL AMINE
PRIMARY ALCOHOL	SECONDARY	TERTIARY	N H $-R$ AMMONIA		
ETHERS			N H $-R$	N H $-R$	N $-R$ $-R$
H H $H-C-O-C-H$ H METHYL ETHER	$-O-$ ETHER GROUP	$R-O-R$ ETHERS	PRIMARY AMINE SECONDARY TERTIARY		
ALDEHYDES			$R-O-N=O$ $R-N=O$ $R-O-N=O$		
H $H-C=O$ H ETHANAL OR ACETALDEHYDE	$-C=O$ H ALDEHYDE GROUP	$R-C=O$ H ALDEHYDES	NITRITES	NITRO COMPOUNDS	NITRATES
KETONES			NITRILES OR ALKYL CYANIDES		
H H $H-C-C-H$ H PROPANONE OR ACETONE	$-C-$ O KETONE GROUP	$R-C-R$ O KETONES	$H_3C-C \equiv N$ ACETONITRILE	$-C \equiv N$ NITRILE GROUP	$R-C \equiv N$ NITRILES
ACIDS			ISONITRILES OR CARBYLAMINES		
H H $H-C-C=O$ H ETHANIC ACID OR ACETIC ACID	$-C=O$ OH CARBOXYL GROUP	$R-C=O$ OH ACIDS	$H_3C-N=C$ METHYL ISOCYANIDE	$-N=C$ CARBYLAMINE GROUP	$R-N=C$ CARBYLAMINES
ACID DERIVATIVES			SULFUR COMPOUNDS		
$H_3C-C=O$ ONa SODIUM ACETATE	$-C=O$ OM M -METAL SALT GROUP	$R-C=O$ OM SALTS	H_3C-SH METHYL MERCAPTAN	$-SH$ MERCAPTAN GROUP	$R-SH$ MERCAPTANS
$H_3C-C=O$ OCH_3 METHYL ACETATE	$-C=O$ OR ESTER GROUP	$R-C=O$ OR ESTERS	$H_3C-S-CH_3$ METHYL SULFIDE	$-S-$ THIO-ETHER GROUP	$R-S-R$ THIO-ETHERS
DERIVATIVES CONTINUED ABOVE			$R-S-S-R$ DISULFIDES	$R-S-M$ MERCAPTIDES	$R-COSH$ THIO-ACIDS
			$R-S=O$ SULFOXIDES	$R-S=O$ SULFONES	$R-S=O$ $HO-S=O$ SULFONIC ACIDS
METALLIC ALKYL COMPOUNDS			METALLIC ALKYL COMPOUNDS		
			Mg Br C_2H_5 MAGNESIUM ETHYL BROMIDE	$M-X$ $M=Mg, Zn, etc$	$M-X$ $M=Mg, Zn, etc$
			Zn C_2H_5 C_2H_5 ZINC ETHYL	$M-X$ METALLIC ALKIDES	

ORGANIC TYPE FORMULAS

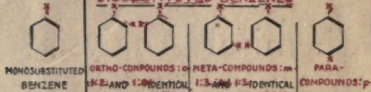
AROMATIC SERIES

COLUMN I

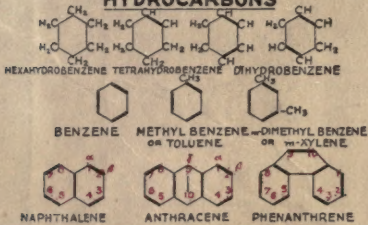
BENZENE



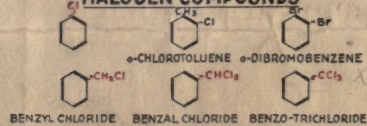
DISUBSTITUTED BENZENES



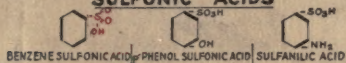
HYDROCARBONS



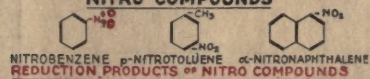
HALOGEN COMPOUNDS



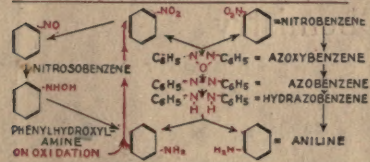
SULFONIC ACIDS



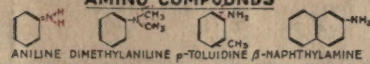
NITRO COMPOUNDS



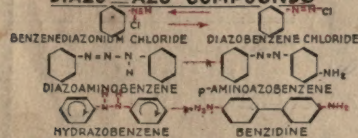
REDUCTION PRODUCTS OF NITRO COMPOUNDS



AMINO COMPOUNDS

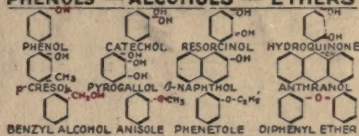


DIAZO AND AZO COMPOUNDS

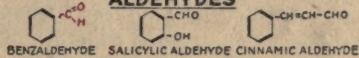


COLUMN II

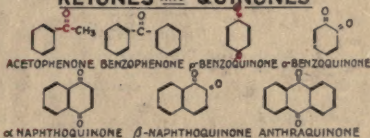
PHENOLS — ALCOHOLS — ETHERS



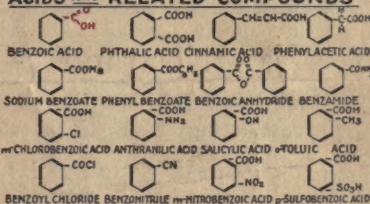
ALDEHYDES



KETONES AND QUINONES



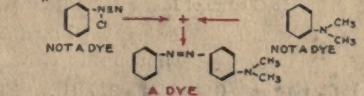
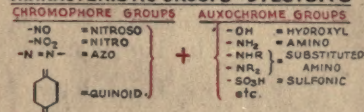
ACIDS AND RELATED COMPOUNDS



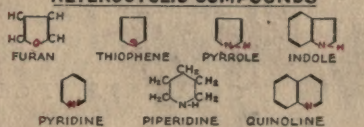
RULES FOR SUBSTITUTION

PRESENT IN POSITION	POSITION ENTERED BY SUBSTITUENTS					
	ALKYL	Cl	Br	I	NO ₂	SO ₃ H
ALKYL	4 (2)	4 (2)	4 (2)	4 (2)	4 (2)(3)	4 (2)(3)
Cl	4 (2)	4 (2)(3)	4 (2)(3)	4	4 (2)	4
Br	4 (2)	4 (2)(3)	4 (2)(3)	4	4 (2)	4
I	4	4	4	4	4 (2)	4
OH	4 (2)	4 (2)	4 (2)	4 (2)	4 (2)	4 (2)
NO ₂	4 (2)	4 (2)	4	4	3(2,4)	3(2,4)
SO ₃ H	4 (2)	4	4	4	3(2,4)	3(4)
COOH	4 (2)	3	3	3	3(2,4)	3(4)
OR					3	

CHARACTERISTIC GROUPS IN DYE STUFFS



HETEROCYCLIC COMPOUNDS



Heavy Lines indicate Double Bonds. Light Lines indicate Single Bonds.



156116 C
L9227nx

Author Lowy, Alexander [comp.]

Title Organic type formulas

University of Toronto
Library

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET



